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DOLL HEAD MOUNTING

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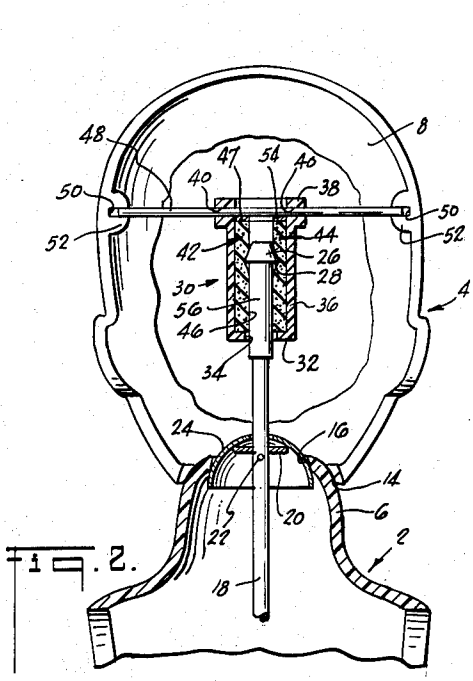


Fig. 2.

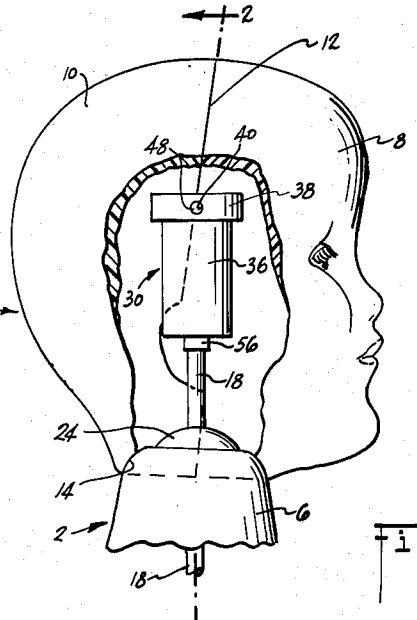


Fig. 1.

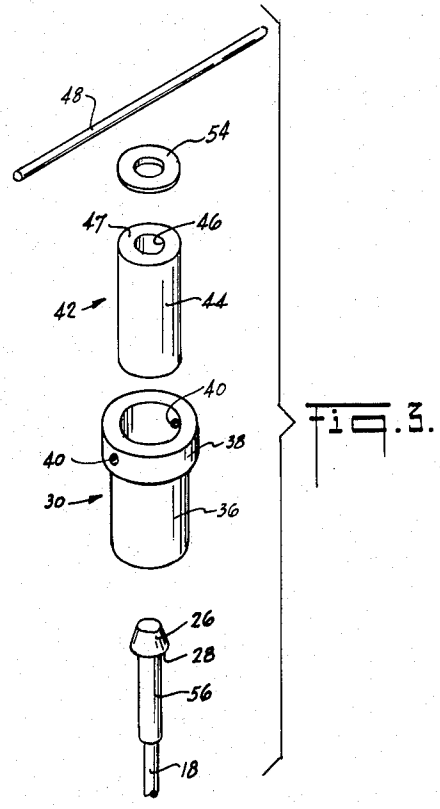


Fig. 3.

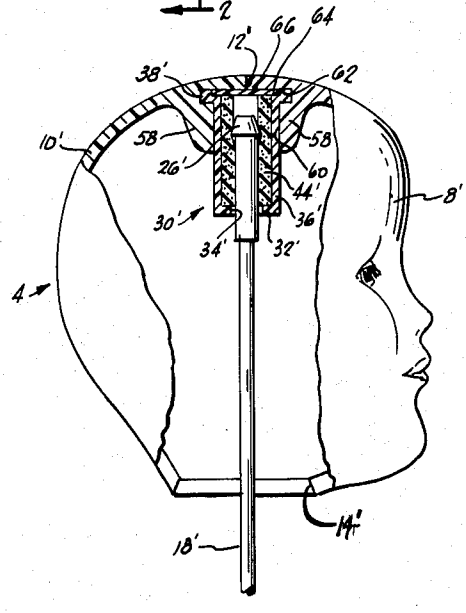


Fig. 4.

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DOLL HEAD MOUNTING

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10 Claims. (Cl. 46—149)

The present invention relates to an arrangement for mounting the head of a doll on a doll body in such a way as to permit the head to be freely turned with respect to the body without damage. The invention is particularly adapted for use in walking dolls of the type in which the head is designed to swing from side to side as the doll walks, the construction in question providing for a driving connection between the head and the walking mechanism so that actuation of the latter will give rise to a swinging motion of the former, but the invention in its broader aspects is not limited thereto.

The rough handling to which dolls are subjected by their youthful users is well known. Because the human head may be turned to the right or to the left and may assume such a turned position for an appreciable period of time, children try to make the heads of their dolls assume similar positions. In those dolls which permit such movement of the head relative to the body some sort of friction relief must be provided in order that the head should remain in the position in which it is placed and should be movable to that position without damage. Various types of structures have been proposed in the past which will permit such movement. They are characterized particularly by being difficult to assemble, and they require considerable skill when the head is finally to be secured to the doll body.

In walking dolls of the type in which the walking mechanism causes the head to swing back and forth, the operative connection between the walking mechanism and the head comprises a shaft extending from the body into the head and connected to the head by some suitable structural arrangement. Here again, if the head is to be swingable with respect to the body independently of the operation of the walking mechanism, some sort of frictional relief must be provided between the head and the walking mechanism shaft. The arrangements which have been proposed in the past are not only subject to the disadvantages set forth in the preceding paragraph, but have the further drawback that the vertical position of the head relative to the body is rigidly determined by the shaft itself, and if the shaft should be somewhat longer than normal, or if the walking mechanism of the doll body should be somewhat higher than normal, the head of that particular doll will be upwardly spaced from the neck and shoulders of the doll when the head is assembled, thus giving rise to an unnatural appearance and even to an unsightly and inadmissible gap between the head and the top of the body.

The present invention has for its object the provision of a head mounting arrangement which will permit the head to be twisted with respect to the body without damage, which will cause the head to remain in the position to which it is turned, and which will provide an effective operative connection between the walking mechanism of the doll and the head, so that the head will be rotated when the walking mechanism operates, if such walking mechanism is incorporated into the doll. The mounting

arrangement of the present invention is characterized by being formed of a plurality of simple and easily assembled parts all of which are well adapted to mass production and which are therefore extremely inexpensive. The arrangement is particularly designed to facilitate the assembly of the head on the body of the doll and to permit the head to be properly positioned with respect to the body of the doll independently of manufacturing variations in the length or position of the shaft or other vertical members extending from the doll body into the head and to which the head is secured. The design is such that, while assembly of the head on the body is readily achieved, separation of the head from the body is strongly resisted. However, if sufficient force is exerted by pulling the head away from the body, the mounting structure will yield and permit the head to move away from the body without damage to any part of the structure. Even if the head is entirely removed from the body, it is merely necessary to press it back onto the body in order to re-establish the proper and effective operative connection between the head and the body, and between the head and the walking mechanism if present.

To the accomplishment of the above, and to such other objects as may hereinafter appear, the present invention relates to a structure by means of which a doll head may be mounted on a doll body, and more particularly to a structure by means of which a doll head may be operatively connected to a walking mechanism so that the head may be swung from side to side or otherwise actuated as the walking mechanism is operated, all within the spirit of the invention as defined in the appended claims and as described in this specification, taken together with the accompanying drawings, in which:

Fig. 1 is a side elevational view of a doll head in position on the upper portion of a doll body, the head being partially broken away to show one embodiment of the mounting arrangement;

Fig. 2 is a cross sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a perspective exploded view showing the parts of the mounting mechanism in Figs. 1 and 2; and

Fig. 4 is a view similar to Fig. 1 but showing another embodiment of the present invention;

The invention is here described as embodied in a doll body 2 in which some mechanism is provided for causing the head 4 of the doll to swing to and fro. The specific nature of that mechanism, whether it is associated with a walking mechanism or is a separate mechanism, forms no part of the present invention, and consequently no details thereof are here illustrated. Indeed, as has previously been mentioned, the present invention has applicability to doll structures in which no such mechanism is incorporated. Moreover, the specific structure of the doll body 2 forms no part of the present invention, and consequently only the neck portion 6 thereof, on which the head 4 is adapted to rest, is here illustrated.

The head 4, as is conventional, is illustrated as formed of front and rear sections 8 and 10 meeting along line 12 and adapted to be secured together by adhesive or in any other conventional manner. The front section 8 is shaped to simulate the usual facial features and may be provided with whatever type of eyes is desired. The rear section 10 is shaped to simulate the rear half of the head. When the sections are assembled together, the lower portions of the sections 8 and 10 define an aperture 14 fittable over the neck portion 6 of the body 2, and preferably fitting snugly thereover so that no gaps are visible therebetween. The upper tip of the portion 6 is provided with an aperture 16 through which a shaft 18 extends from the interior of the hollow doll body 2 into the interior of the head 4. As here dis-

closed the shaft 18 is provided with a washer 20 vertically supported by the pin 22 and in turn supporting a cup-shaped washer 24 which closes the aperture 16 and extends partially into the head 4. The shaft 18 may, if desired, be rigidly fixed to the doll body 2 in any appropriate manner, but it usually constitutes part of the operative connection between the head 4 and some head-swinging mechanism located within the doll body 2, in which case it is rotatable about its own axis. That portion of the shaft 18 which extends into the head 4 is provided with a portion 26 which tapers downwardly and outwardly to a diameter greater than that of the shaft 18 and terminating in an abrupt and substantially untapered ledge 28 leading back to the shaft proper 18.

A shell 30 formed of molded plastic or the like has a bottom wall 32 with an opening 34 therein, a cylindrical side wall 36, and an upper ring flange 38 provided with diametrically opposed apertures 40. The diameter of the opening 34 is greater than the maximum diameter of the shaft portion 26, the latter thus being freely passable through the opening 34.

A member 42 of some deformable material such as rubber, and specifically taking the form of a sleeve 44 of such material having a central aperture 46, is received within the shell 30, rests upon the bottom wall 32 with its aperture 46 coaxial with the opening 34 in the bottom wall 32, and is of a length such that its upper end 47 is positioned below the apertures 40 in the shell flange 38. The external diameter of the sleeve 44 is but slightly less than the internal diameter of the shell 30, the sleeve 44 being insertable into the shell 30 from above with but a minimal amount of frictional resistance, if any such resistance is exerted at all. The internal diameter of the aperture 46 in the sleeve 44 is less than the diameter of the opening 34 in the bottom shell wall 32 and is also smaller than the maximum diameter of the shaft portion 26. The size of the sleeve aperture 46 is preferably slightly greater than the minimum diameter of the shaft portion 26 so as to facilitate insertion of the latter into the former.

A pin 48 passes through the apertures 40 in the shell flange 38 and extends from one side of the doll head 4 to the other inside that head. The tips of the pin 48 are received within slots 50 formed in lugs 52 extending inwardly from the walls of the head 4, the slots 50 in the front head section 8 being open to facilitate insertion of the ends of the pin 48, the rear head section 10 having corresponding but unslotted lugs which close the slots 50 when the head sections 8 and 10 are assembled together so as to retain the pin 48 in position. The pin 48 extends over the upper surface 47 of the sleeve 44 and thus positively prevents that sleeve 44 from escaping from the shell 30. If desired, and as here disclosed, a washer 54 of some rigid material may be interposed between the pin 48 and the upper sleeve surface 47 in order to distribute the retaining force exerted by the pin 48 substantially evenly over surface 47.

The manner of assembly of the mounting structure, its connection to the head 4, and the connection and proper positioning of the head 4 on the body 2 may all be very readily accomplished. The sleeve 44 is slid into the shell 30, the washer 54 is pressed on the upper sleeve surface 47, and the pin 48 is passed through the apertures 40. If desired, the axial length of the sleeve 44 may be such as to require some slight axial compression in order to permit the pin 48 to pass over the washer 54. This will result in a lateral expansion of the sleeve 44, causing it to grip the inner surface of the sleeve walls 36 with an appreciable force, and also somewhat decreasing the internal diameter of the sleeve aperture 46. The ends of the pin 48 are inserted into the slots 50, the head sections 8 and 10 are secured together, and the head is now ready to be placed in position on the body 2. All that is necessary to accomplish that purpose is to slide the head downwardly over the upwardly extending portion of the shaft 18 until it rests snugly on the neck portion 6 of the body 2, the tip of the shaft 18 including the shaft portion 26 passing up through the opening 34 in the bottom shell wall 32 and into the sleeve aperture 46. Because the shaft portion 26 is tapered outwardly and downwardly, its movement upwardly through the smaller sleeve aperture 46 is fairly readily accomplished, and the action of the wide part of the shaft portion 28 in distending the sleeve aperture 46 will give rise to a firm frictional connection between the shaft 18 and the sleeve 44. If desired, and as here disclosed, that portion of the shaft 18 received within the sleeve aperture 46 other than the shaft portion 26 may have a diameter slightly greater than the internal diameter of the aperture 46, thus increasing the magnitude of the frictional engagement between the shaft 18 and the sleeve 44. The outward distension of the sleeve 44 will not only provide for the shaft-sleeve frictional connection above set forth, but will also ensure a firm frictional connection between the sleeve 44 and the shell 30.

Thus if the shaft 18 should be rotated the head 4 will also rotate. If the head 4 should be manually held against rotation while the shaft 18 is rotated, slippage will take place either between the shaft 18 and the sleeve 44 or between the sleeve 44 and the shell 30, so that no damage will result. If the shaft 18 is stationary and the head 4 should be manually twisted, slippage will again take place and damage will again be prevented.

It is to be particularly noted that because of the length of the sleeve aperture 46 considerable variation in the axial relationship between the shaft 18 and the head 4 is permitted without detracting from the efficacy and advantages of the operative connection between the head 4 and the body 2. Thus unavoidable variations in dimensions or placement incident to normal manufacturing procedures, or even similar variations of abnormal magnitude, may be accommodated without difficulty.

Because the shaft portion 26 is only tapered in one direction, and because it is joined at its lower end to the shaft proper 18 by means of an abrupt and untapered wall 28, much greater resistance will be offered to movement of the head 4 away from the body 2 than is offered to movement of the head 4 toward the body 2. Consequently any normal pull exerted on the head 4 tending to lift it from the body 2 will be sufficiently strongly resisted to prevent the head 4 from being moved from its proper position. The sleeve 44 may yield slightly to such a pull, but when the force is released the resiliency of the sleeve 44 will cause the head 4 to resume its normal position. However, if a sufficiently different force is exerted in that direction the head 4 can be pulled from the body 2, the shell 30 and sleeve 44 sliding upwardly over the shaft portion 26 without damage. Even if the head 4 is pulled entirely off of the body 2, it may be replaced in position, and the operative connection between the head 4 and the body 2 may be re-established, in the simplest of manners, to wit, merely by pushing the head 2 back into place while causing the shaft portion 26 to re-enter the sleeve 44.

The embodiment of Fig. 4 discloses another mode of operatively connecting the head 4 to the shaft 18. In this embodiment the front and rear head sections 8' and 10' which meet along the line 12' when assembled, have inwardly projecting lugs 58 at their top, those lugs defining between themselves when the heads are assembled an axial passage 60 and a rim receiving passage 62. The shell 30' is similar to the shell 30 except that its rim 38' is not provided with the apertures 40 but is instead provided with a countersunk area 64. The rim 38' fits within the aperture 62, while the cylindrical portion 36' of the shell 30' fits within and passes through the axial passage 60. A cap 66 fits within the countersunk portion 64 and is there secured, as by means of adhesive or the like, thus closing the open top of the shell 30' so as

to retain the sleeve 44' in place. The shaft 18' is elongated so that its tapered tip 26' will pass inside of the sleeve 44', just as in the previously described embodiment, distending the sleeve 44' and giving rise to an operative sequential connection between the shaft 18' and the shell 30'. The shell 30', in turn, is frictionally grasped within the passages 60 and 62, thus completing the operative connection between the shaft 18' and the head 4.

The embodiment of Fig. 4 may be put in place on the doll body with which it is to be associated in the same manner as with the embodiment of Figs. 1–3, but with somewhat greater ease, since the orientation of the shell 30' with respect to the head 4 is fixed, the shell 30', on the other hand, being somewhat pivotal about the pin 48. The embodiment of Fig. 4 is particularly adapted for use in dolls formed of vinyl or other rubber-like materials, and may even be incorporated into a one-piece head provided that the portion of the head where the shell 30' is to be inserted is sufficiently resiliently flexible to permit the insertion of the shell 30' followed by sufficient frictional gripping of the shell 30' to prevent undesired rotation of the head 4.

While but two embodiments of the present invention have been here disclosed, it will be apparent that many variations may be made therein, all within the spirit of the invention as defined in the following claims.

I claim:

1. In combination, a doll head, a doll body on which said head is to be mounted, a shell in said head, said shell having a top opening and a bottom wall with a bottom opening smaller than said top opening, a member of deformable material within said shell and resting on said bottom wall, said member being of a size such as to be insertable into said shell via said top opening and to snugly engage the inner surface of said shell, said member having an aperture smaller than and communicating with said bottom shell opening, means for securing said shell to said head, said means at least partially closing said top opening and thus preventing said member from escaping from the top of said shell, and a shaft extending up from said body into and being slidable into, through and out from the aperture in said member via the bottom opening in said shell, a portion of said shaft received within said aperture being greater in width than said aperture but smaller than the bottom opening in said shell, thereby to deform said member into frictional engagement with said shaft and said shell.

2. The head mounting structure of claim 1, in which said means connecting said shell to said head comprises an element secured to said shell, extending substantially along the open top of said shell and over the upper edge of said member, thus positively preventing said member from being forced out of the top of said shell when said shaft is inserted into the aperture in said member via the bottom of said shell.

3. The head mounting structure of claim 1, in which said shell has a hole in the side thereof above the upper edge of said member, and in which said means connecting said shell to said head comprises a pin secured to said head and passing through said hole into said shell and over the upper edge of said member, thus positively preventing said member from being forced out of the top of said shell when said shaft is inserted into the aperture in said member via the bottom of said shell.

4. The head mounting structure of claim 1, in which said means connecting said shaft to said head comprises an element secured to said head, telescopable with respect to the top of said shell, and extending substantially over the open top of said shell and over the upper edge of said member, thus positively preventing said member from being forced out of the top of said shell when said shaft is inserted into the aperture in said member via the bottom of said shell.

5. The head mounting structure of claim 1, in which said means connecting said shell to said head comprises a stud depending from the top wall of said head, telescopable into the open top of said shell, engaging said shell so as to rotate therewith, and substantially abutting the upper edge of said member, thus positively preventing said member from being forced out of the top of said shell when said shaft is inserted into the aperture in said member via the bottom of said shell.

6. The head mounting structure of claim 1, in which said shaft has a width less than the width of the aperture in said member and is provided with a portion receivable within said aperture and tapered outwardly and downwardly to a width greater than the width of said aperture.

7. The head mounting structure of claim 1, in which the body of said shaft has a width less than the width of said aperture in said member and is provided with a portion receivable within said aperture and tapered outwardly and downwardly to a width greater than the width of said aperture, the lower end of said portion being abruptly connected to the body of said shaft in a substantially untapered manner.

8. The head mounting structure of claim 1, in which said member comprises a sleeve of rubber-like material the external diameter of which is slightly less than the internal diameter of said shell and the internal diameter of which is less than that of the opening in the bottom of said shell, said shaft having a diameter less than the internal diameter of said sleeve and tapered outwardly and downwardly to a diameter greater than the internal diameter of said sleeve.

9. The head mounting structure of claim 1, in which said member comprises a sleeve of rubber-like material the external diameter of which is slightly less than the internal diameter of said shell and the internal diameter of which is less than that of the opening in the bottom of said shell, said shaft having a diameter less than the internal diameter of said sleeve and tapered outwardly and downwardly to a diameter greater than the internal diameter of said sleeve, the lower end of said portion being abruptly connected to the body of said shaft in a substantially untapered manner.

10. Head mounting structure for a doll or the like comprising a shell having an opening at its bottom, means connecting said shell to said head, a sleeve of rubber-like material fitting snugly inside said shell in engagement with the inner surface thereof, said sleeve normally having an external diameter slightly less than the internal diameter of said shell and having an internal diameter less than that of the opening in the bottom of said shell and communicating with said opening, and a shaft extending up into and being slidable through the aperture in said member via the opening in said shell, the body of said shaft having a diameter less than the internal diameter of said sleeve and having a portion receivable within said sleeve and tapered outwardly and downwardly to a diameter greater than the internal diameter of said sleeve, the lower end of said portion being abruptly connected to the body of said shaft in a substantially untapered manner, said shaft when received within said sleeve deforming said sleeve into frictional engagement with said shaft and said shell.

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